UV Cure Dose Log

How-to guide: what the workbook does, how to use it and what every number means. mfgcalcs.com

UV Cure Dose Log

Log every radiometer check of your UV curing lines, see the dose each product received against its target and your safety margin, and the fastest belt speed that still cures.

For: Coating, printing and bonding process engineers, quality technicians and line leads running UV curing.

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Quick start

1. On Setup, set your safety margin, list your UV lines with their cure-zone length, and your products with their cure-dose target.
2. On Checks, give each radiometer check a row: date, line, product, measured irradiance and belt speed.
3. Fix anything the Check column names.
4. Open the Dashboard: dose against target for the line you pick, and each line's speed against the fastest that cures.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	Plant, the safety margin, the lines with their cure-zone length, and the products with their cure-dose target.
Checks	One row per radiometer check: line, product, irradiance and belt speed in; dose, margin and fastest cure speed out.
Dashboard	Dose against target and your safety margin for the line you pick, and every line's speed against the fastest that cures.
Method	How every number is calculated, with assumptions, limits and sources.
Verify	Self-check: the workbook's formulas recomputed on fixed inputs against an independent reference.

What each number means

Quantity	How it is calculated	Units
Exposure	Cure-zone length / belt speed x 60.	s
Dose	Irradiance x exposure.	mJ/cm²
Dose vs target	Dose / target dose.	%
Exposure needed	Target dose / irradiance.	s

Quantity	How it is calculated	Units
Fastest belt speed	Zone length / exposure needed x 60.	ft/min
Shortfall	Target - dose, never below 0.	mJ/cm²
Status	On target at or above the safety margin; Near target between 100% and the margin; Below target under 100%.	-

Assumptions, limitations, sources and the self-check (the Verify sheet, which recomputes the workbook's formulas on fixed test inputs) are in the workbook. The last page shows the Dashboard with the example data for Lorimer Coatings, a fictional business.

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Engineering estimates for planning and improvement work. Verify the results against your own process, data and standards before you rely on them.

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Dose against target and your safety margin for the line you pick, and every line's speed against the fastest that cures.

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Line shown in the trend: UV1 topcoat

Lorimer Coatings, finishing (example): 4 UV lines, 32 checks. Safety margin 120% of target.

CHECKS LOGGED	CHECKS BELOW TARGET	LOWEST DOSE, LATEST CHECKS	LINES FASTER THAN THEY CURE
32	2	115.4%	0
Rows with a dose	Dose under 100% of target	Dose / target, each line's last check	Belt speed above fastest cure speed

Dose against target, line shown



Belt speed against fastest cure speed (ft/min)

